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REMARKS

Claims 1 – 36 are pending in the present application. Claim 1 has been amended to better define the invention. No new matter has been introduced by the amendment to claim 1. Support for this amendment may be found on page 5, lines 10-11.

Reconsideration and allowance of the claims is respectfully requested in view of the above amendments and the following remarks.

I. Rejection Of Claims 1-36 Under 35 U.S.C. § 102(B) As Anticipated By, Or Alternatively Under 35 U.S.C. § 103(a) As Obvious Over, WO 96/01865 ("865")

Claims 1-36 stand rejected under 35 U.S.C. § 102(b), as anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious over WO '865.

With respect to the rejection under 35 U.S.C. § 102(b), it is the PTO's position that the '865 reference teaches

...dendrimers that can be used to improve the fluidity of polyphenylene oxide....As the dendrimers improve the fluidity of polyphenylene ether, they inherently have the required melt viscosity....

(Office Action of 4/1/03, page 2)

Applicant appreciates the detailed basis of rejection but must respectfully disagree. To constitute anticipation, all material elements of a claim must be found in one prior art source. *In re Marshall*, 198 U.S.P.Q. 344 (CCPA 1978). Missing elements may not be supplied by the knowledge of one skilled in the art or the disclosure of another reference. *Structural Rubber Prods. Co. v. Park Rubber Co.*, 223 U.S.P.Q. 1264, 1271 (Fed. Cir. 1984). The '865 reference fails to disclose all of the material elements of independent claims 1 and 19.

Independent claim 1 requires the combination of a particular polyphenylene ether resin, i.e., one having an intrinsic viscosity of 0.2 dl/g or greater, and a particular dendritic polymer, i.e., one having a melt viscosity of 1 to 250 Pa at a temperature of 110°C and a shear rate of 30 sec⁻¹. Independent claim 19 may utilize any polyphenylene ether resin, but is limited to a smaller class of dendritic polymers, i.e., those having a melt

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viscosity of 1 to 250 Pa at a temperature of 110°C and a shear rate of 30 sec⁻¹ and asymmetric branches.

The '865 reference discloses multihydroxy functional oligophenylene oxide obtained by reacting a particular hydroxyaryl compound with polyphenylene oxide in the presence of a transition metal and an amine. As noted by the PTO, the reference does disclose the use of the resultant multihydroxy functional oligophenylene oxide as fluidity improving agent in polymers such as polyphenylene oxide.

However, the '865 reference does not disclose any combination requiring only certain polyphenylene oxide polymers and only those dendritic polymers having the particularly required melt viscosity.

In fact, the multihydroxy functional oligophenylene oxides of the '865 reference are characterized only with intrinsic viscosities. It will be appreciated that intrinsic viscosities are not equivalent to melt viscosities. An intrinsic viscosity is the limiting viscosity number obtained by extrapolation of the reduced viscosity to zero concentration, wherein reduced viscosity is the specific viscosity divided by concentration, specific viscosity is the difference between the relative viscosity and 1, and the relative viscosity is the ratio of the viscosities of a solution and its solvent.¹ In contrast, melt viscosity is a measure of resistance to flow at a specific temperature and increases exponentially with molecular weight.

Thus, the material elements of claim 1 are not disclosed by the '865 reference. There must be no difference between the claimed invention and the disclosure, as viewed by a person of ordinary skill in the field of the invention. *Scripps Clinic & Res. Found. v. Genentech Inc.*, 18 U.S.P.Q.2d 1001 (Fed. Cir. 1991).

The PTO's position appears to be that Applicant's melt viscosity limitation is inherently disclosed by the '865 reference. However, inherency must flow as a necessary conclusion from the prior art, not simply as a possible one. *In re Oelrich*, 666 F.2d 578, 581, 212 U.S.P.Q. 323, 326 (C.C.P.A. 1981). That is, an element is inherently present when it is not specifically found in the prior device but is always present or flows naturally from what is taught there. *Levi Strauss & Co. v. Golden Trade*, 1995

1 R. B. Seymour, C.E. Carraher, Jr. (1981): Polymer Chemistry, An Introduction, Chapters 3 & 4.

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WL710822*17 (S.D. N.Y. 1995). Moreover, in relying upon the theory of inherency, the PTO must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic *necessarily* flows from the teachings of the applied prior art." *Ex parte Levy*, 17 U.S.P.Q.2d 1461 (Bd. Pat. App. & Int'f 1990).

The cited reference fails to meet the test for an inherently anticipatory reference with respect to independent claims 1 and 19. In the case of claim 1, neither the intrinsic viscosity requirement of the polyphenylene oxide resin or the melt viscosity requirement of the dendritic polymers are inherently present or necessarily flow from the teachings of the '865 reference. Not all polyphenylene oxide resins will have the required intrinsic viscosity and not all dendritic polymers will have the required melt flow viscosity. Most importantly, it is the combination of these two elements that is not always present in the '865 reference. As a result, independent claim 1 is not anticipated by the cited reference.

Independent claim 19 is also novel with respect to the '865 reference for similar reasons. Although the cited reference notes the degree of branching of the disclosed multihydroxy functional oligophenylene oxides, it is silent as to whether such branches are symmetrical or asymmetrical. Thus, claim 19's requirement that the dendritic polymer have asymmetrical branches is not disclosed and is not always present in the inventions of the '865 reference. As a result, independent is novel with respect to the disclosures of the '865 reference.

Independent claims 1 and 19 have alternatively been rejected as obvious over the '865 reference. To establish a prima facie case of obviousness, three basic criteria must be met. First, there must some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *MPEP 2143*

This standard is not met by the '865 reference. First, as noted above with respect to the rejection under 35 U.S.C. § 102(b), the cited reference fails to teach all of the required claim limitations. Second, it fails to provide any motivation or suggestion to

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modify the compositions of the '865 so as to obtain the invention of Applicant's claims 1 and 19. Nothing in the cited reference suggests the importance of (1) using polyphenylene oxide resins having the particularly required intrinsic viscosities, (2) only dendritic polymers having the specified melt viscosities, (3) utilizing only those dendritic polymers having both the specified melt viscosities and asymmetric branching, and (4) the combination of (1) and (2).

The fact that the '865 reference *could be* modified to obtain Applicant's claimed inventions is not sufficient. Even if the teachings of a primary reference can be modified to arrive at the claimed subject matter, the modification is not obvious unless the prior art also suggests the *desirability* of such a modification. *In re Laskowski*, 10 U.S.P.Q.2d 1397, 1398 (Fed Cir. 1989).

Rather than suggest the desirability of selecting only Applicants' dendritic polymers, the '865 reference teaches that advantageous dendritic polymers are those obtained from its particularly disclosed process and structure. The '865 reference ignores the importance of both the melt viscosity, i.e., Applicant's claim 1, and the asymmetric branching requirement, i.e., Applicant's claim 19. Where the prior art gives no indication of which parameters are critical and no direction as to which of many possible choices is likely to be successful, the fact that the claimed combination falls within the scope of possible combinations taught therein does not render it unpatentably obvious. *In re O'Farrell*, 7 U.S.P.Q. 1673 (Fed. Cir. 1988).

As a result, it is respectfully submitted that the inventions of independent claims 1 and 19 are patentable and nonobvious over the '865 reference.

II. Rejection Of Claims 1-36 Under 35 U.S.C. § 102(B) As Anticipated By, Or Alternatively Under 35 U.S.C. § 103(a) As Obvious Over, U.S. Patent No. 6,497,959, Mhetar ("959")

Claims 1-36 stand rejected under 35 U.S.C. § 102(b), as anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious over Mhetar.

With respect to the rejection under 35 U.S.C. § 102(b), it is the PTO's position that Mhetar teaches polyester dendrimers that can be used to increase the flow of polyphenylene ether. In particular, it is stated that the polyester dendrimer H30 inherently has the required melt viscosity or that it would be obvious to use a dendrimer having the

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required melt viscosity to increase the melt flow of polyphenylene ether. (*Office Action of 4/1/03, page 3*)

Applicant appreciates the detailed basis of rejection but must respectfully disagree. As noted above, anticipation requires that all material elements of a claim must be found in one prior art source. *In re Marshall*, 198 U.S.P.Q. 344 (CCPA 1978). Missing elements may not be supplied by the knowledge of one skilled in the art or the disclosure of another reference. *Structural Rubber Prods. Co. v. Park Rubber Co.*, 223 U.S.P.Q. 1264, 1271 (Fed. Cir. 1984)

The '959 reference fails to disclose all of the material elements of independent claims 1 and 19. In particular, Applicant's claimed inventions are more than the use of dendritic polymers having a particular melt viscosity. As noted above, claim 1 requires the combination of a particular polyphenylene ether resin, i.e. one having an intrinsic viscosity of 0.2 dl/g or greater, and a particular dendritic polymer, i.e., one having a melt viscosity of 1 to 250 Pa at a temperature of 110°C and a shear rate of 30 sec⁻¹. Independent claim 19 may utilize any polyphenylene ether resin, but is limited to a smaller class of dendritic polymers, i.e., those having a melt viscosity of 1 to 250 Pa at a temperature of 110°C and a shear rate of 30 sec⁻¹ and asymmetric branches.

It is incumbent upon the PTO to identify wherein each and every facet of the claimed invention is disclosed in the applied reference. *Ex Parte Levy*, 17 USPQ2d 1461 (Bd. Pat. App. & Int'f 1990). Claim 1's requirement that only particular polyphenylene ether resins be used, i.e., those having an intrinsic viscosity of 0.2 dl/g or greater, may not be ignored. The PTO may also not ignore claim 19's requirement that the dendritic polymer have asymmetric branches.

These limitations are not inherently disclosed in Mhetar, that is, they are not always present and do not necessarily flow from the disclosures of the '959 patent. An element is inherently present when it is not specifically found in the prior device but is always present or flows naturally from what is taught there. *Levi Strauss & Co. v. Golden Trade*, 1995 WL710822*17 (S.D. N.Y. 1995)

Mhetar's teachings with regard to polyphenylene oxide resins are limited to the single disclosure of polyphenylene ether in a large laundry list of suitable thermoplastic

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resins. The working examples of the '959 patent are limited to blends of polycarbonate resins and dendrimer additives. Thus, Mhetar teaches that any polyphenylene oxide resin is suitable for use with the claimed dendrimer additives. Mhetar is silent as to the particular intrinsic viscosity limitation set forth in Applicant's claim 1.

Mhetar is also silent as to the need to utilize dendritic polymers having the required asymmetric branching of independent claim 19. Rather than teach the need to use dendrimers with asymmetric branching, Mhetar simply teaches that suitable dendrimers will have a G (number of generations of dendrimer synthesis) and N_b (branch multiplicity of the repeat unit) ≥ 2 . Nothing in the '959 reference teaches the required material element.

As such, it is respectfully submitted that independent claims 1 and 19 are novel with respect to the '959 reference.

Independent claims 1 and 19 have alternatively been rejected as obvious over Mhetar. As previously discussed, there are three basic requirements for a prima facie case of obviousness. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *MPEP 2143*

This standard is not met by the '959 reference. First, as noted above with respect to the rejection under 35 U.S.C. § 102(b), the cited reference fails to teach all of the required claim limitations. Second, it fails to provide any motivation or suggestion to modify the compositions of the '959 so as to obtain the invention of Applicant's claims 1 and 19.

Nothing in the '959 reference suggests the importance of (1) using polyphenylene oxide resins having the particularly required intrinsic viscosities, and (2) utilizing only those dendritic polymers having both the specified melt viscosities and asymmetric branching, or (3) the combination of (1) with dendritic polymers of a particular melt viscosity.

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The fact that the '959 reference *could be* modified to obtain Applicant's claimed inventions is not sufficient. Even if the teachings of a primary reference can be modified to arrive at the claimed subject matter, the modification is not obvious unless the prior art also suggests the *desirability* of such a modification. *In re Laskowski*, 10 U.S.P.Q.2d 1397, 1398 (Fed Cir. 1989).

Nothing in Mhetar suggests the use of only those polyphenylene oxide resins having the particularly required intrinsic viscosity. Rather, the working examples of the '959 patent are limited to blends of polycarbonate resins and dendrimer additives. Taken as a whole, Mhetar teaches that *any* polyphenylene oxide resin is suitable for use with the claimed dendrimer additives. Mhetar provides no motivation to limit the disclosed blends to only those polyphenylene ether resins that have the specified intrinsic viscosity. Indeed, the '959 patent can be viewed as leading one of skill in the art away from the direction of Applicant's claimed invention. Where the prior art gives no indication of which parameters are critical and no direction as to which of many possible choices is likely to be successful, the fact that the claimed combination falls within the scope of possible combinations taught therein does not render it unpatentably obvious. *In re O'Farrell*, 7 U.S.P.Q. 1673 (Fed. Cir. 1988).

Mhetar is similarly silent as to any motivation to preferentially select dendritic polymers having the required asymmetric branching. Something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the necessary modification. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1051 5 U.S.P.Q.2d 1434, 1438 (Fed Cir.), *cert denied*, 488 U.S. 825 (1988)

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The requirements of a prima facie case of obviousness as to claims 1 and 19 are not met with the '959 reference. As a result, it is respectfully submitted that the inventions of independent claims 1 and 19 are patentable and nonobvious over the '959 reference.

III. Rejection Of Claims 1-36 Under The Judicially Created Doctrine of Obviousness-Double Patenting Over Claims 1-39 of U.S. Patent No. 6,414,084.

Claims 1-36 have been rejected under the judicially created doctrine of obviousness-type double patenting over claims 1-39 of U.S. Patent No. 6,414,084. It is the PTO's position that the instant claims encompass the claims of 6,414,084.

The terminal disclaimer submitted herewith is believed to render this rejection moot. Reconsideration and removal of the rejection is respectfully requested.

CONCLUSION

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance is requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 07-0862 maintained by Assignee.

Respectfully submitted,

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